13 Apr 2005

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| Terms | Documents |
|---|---|
| agrobacter$ and L12 | 2 |

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**Search:** L13

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## Search History

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| *DB=EPAB,JPAB,DWPI; PLUR=YES; OP=OR* | | | |
| L13 | agrobacter$ and L12 | 2 | L13 |
| L12 | sunflower and cotyledo$ | 33 | L12 |
| L11 | sunflower and cotyledon | 18 | L11 |
| *DB=USPT; PLUR=YES; OP=OR* | | | |
| L10 | L9 and @py<2000 | 39 | L10 |
| L9 | osmoti$ and l2 | 133 | L9 |
| L8 | (sunflower same cotyledon) and L6 | 2 | L8 |
| L7 | (sunflower adj cotyledon) and L6 | 0 | L7 |
| L6 | sucrose and L5 | 146 | L6 |
| L5 | l2 and @py<2000 | 190 | L5 |
| L4 | w/v and L3 | 144 | L4 |
| L3 | sucrose and L2 | 389 | L3 |
| L2 | cotyledon and L1 | 527 | L2 |
| L1 | sunflower and agrobacter$ | 1391 | L1 |

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☐ 1. Document ID: AU 2002247122 A1, WO 200264745 A2, US 20020157138 A1

**Using default format because multiple data bases are involved.**

L13: Entry 1 of 2 File: DWPI Aug 28, 2002

DERWENT-ACC-NO: 2002-666999
DERWENT-WEEK: 200427
COPYRIGHT 2005 DERWENT INFORMATION LTD
TITLE: Transforming and regenerating sunflower cotyledons contacted in an Agrobacterium culture, useful for producing sunflower plant and seeds

INVENTOR: BRAR, G; ROBERTS, G ; BRAR, G S ; ROBERTS, G A

PRIORITY-DATA: 2001US-268209P (February 12, 2001), 2002US-0683765 (February 12, 2002)

PATENT-FAMILY:

| PUB-NO | PUB-DATE | LANGUAGE | PAGES | MAIN-IPC |
|---|---|---|---|---|
| AU 2002247122 A1 | August 28, 2002 | | 000 | C12N000/00 |
| WO 200264745 A2 | August 22, 2002 | E | 051 | C12N000/00 |
| US 20020157138 A1 | October 24, 2002 | | 000 | A01H005/00 |

INT-CL (IPC): A01 H 5/00; C12 N 0/00

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De

☐ 2. Document ID: WO 9800557 A2, AU 9731443 A, US 5958745 A, US 20030028917 A1

L13: Entry 2 of 2 File: DWPI Jan 8, 1998

DERWENT-ACC-NO: 1998-086981
DERWENT-WEEK: 200313
COPYRIGHT 2005 DERWENT INFORMATION LTD
TITLE: Biosynthesis of poly-beta-hydroxy;butyrate-co -poly-beta-hydroxy;valerate in plants and bacteria - useful as biodegradable plastic for manufacture of bottles, films, coatings and in drug release applications

INVENTOR: CLEMENTE, T E; CONNOR-WARD, D V ; FEDELE, M J ; FRY, J E ; GRUYS, K J ; HINCHEE, M A W ; HOWE, A R ; KISHORE, G M ; MITSKY, T A ; PADGETTE, S R ; ROZMAN, R J ; SLATER, S C ; STARK, D M ; CONNOR-WARD, D ; HINCHEE, M A

PRIORITY-DATA: 1996US-0673388 (June 28, 1996), 1996US-0614877 (March 13, 1996), 1996US-0628039 (April 4, 1996), 1999US-0313123 (May 17, 1999), 2001US-0942891 (August 30, 2001)

PATENT-FAMILY:

| PUB-NO | PUB-DATE | LANGUAGE | PAGES | MAIN-IPC |
|---|---|---|---|---|
| WO 9800557 A2 | January 8, 1998 | E | 311 | C12N015/82 |
| AU 9731443 A | January 21, 1998 | | 000 | C12N015/82 |
| US 5958745 A | September 28, 1999 | | 000 | A61K039/395 |
| US 20030028917 A1 | February 6, 2003 | | 000 | A01H005/00 |

INT-CL (IPC): A01 H 5/00; A61 K 39/395; C07 K 14/195; C12 N 1/21; C12 N 5/10; C12 N 9/00; C12 N 9/10; C12 N 15/52; C12 N 15/53; C12 N 15/54; C12 N 15/60; C12 N 15/82; C12 P 7/62





| Terms | Documents |
|---|---|
| agrobacter$ and L12 | 2 |

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| NEWS | 9 | MAR 03 | MEDLINE file segment of TOXCENTER reloaded |
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| NEWS | 11 | MAR 22 | Original IDE display format returns to REGISTRY/ZREGISTRY |
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| NEWS | 13 | MAR 22 | REGISTRY/ZREGISTRY enhanced with experimental property tags |
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=> s sunflower and Agrobacte?
25113 SUNFLOWER
(SUNFLOWER OR SUNFLOWERS)
L1 154 SUNFLOWER AND AGROBACTE?

=> s l1 and cotyledo?
L2 14 L1 AND COTYLEDO?

=> d 1-14

L2 ANSWER 1 OF 14 CABA COPYRIGHT 2005 CABI on STN
AN 2000:138700 CABA
DN 20001615966
TI Transgenic Trifolium repens with foliage accumulating the high sulphur protein, **sunflower** seed albumin
AU Christiansen, P.; Gibson, J. M.; Moore, A.; Pedersen, C.; Tabe, L.; Larkin, P. J.
CS DLF-Trifolium, Danish Plant Breeding, H<o>jerupvej 31, DK-4660 Store Heddinge, Denmark.
SO Transgenic Research, (2000) Vol. 9, No. 2, pp. 103-113. 45 ref.
ISSN: 0962-8819
DT Journal
LA English
ED Entered STN: 20001107
Last Updated on STN: 20001107

L2 ANSWER 2 OF 14 CABA COPYRIGHT 2005 CABI on STN
AN 1999:136802 CABA
DN 19991610135
TI A focusing device for biolistic transformation of **sunflower** (Helianthus annuus L.) **cotyledons**
AU Vischi, M.; Marchetti, S.; Quagliaro, G.; Olivieri, A. M.; Berville, A. [EDITOR]; Tersac, M. [EDITOR]
CS Dipartimento di Produzione Vegetale e Tecnologie Agrarie, Via delle Scienze 208, 33100 Udine, Italy.
SO Helia, (1999) Vol. 22, No. 30, pp. 71-80. 16 ref.
Price: Conference paper; Journal article .
Meeting Info.: Proceedings of the Fourth European Conference on Sunflower Biotechnology, Montpellier, France, 20-23 October 1998.
DT Journal
LA English
SL Spanish; French
ED Entered STN: 19991012
Last Updated on STN: 19991012

L2 ANSWER 3 OF 14 CABA COPYRIGHT 2005 CABI on STN
AN 1999:64837 CABA
DN 19991604573
TI **Agrobacterium**-mediated transformation of **sunflower** (Helianthus annuus L.): a simple protocol
AU Rao, K. S.; Rohini, V. K.
CS Department of Biochemistry, Indian Institute of Science, Bangalore 560012, India.

SO Annals of Botany, (1999) Vol. 83, No. 4, pp. 347-354. 27 ref.
ISSN: 0305-7364
DT Journal
LA English
ED Entered STN: 19990511
Last Updated on STN: 19990511

L2 ANSWER 4 OF 14 CABA COPYRIGHT 2005 CABI on STN
AN 96:25060 CABA
DN 19961600899
TI Expression of foreign genes in **sunflower** (Helianthus annuus L.) - evaluation of three gene transfer methods
AU Laparra, H.; Burrus, M.; Hunold, R.; Damm, B.; Bravo-Angel, A. M.; Bronner, R.; Hahne, G.; Cassells, A. C. [EDITOR]; Jones, P. W. [EDITOR]
CS Institut de Biologie Moleculaire des Plantes, Centre Nationale de la Recherche Scientifique et Universite Louis Pasteur, 12, Rue du Generale Zimmer, 67084 Strasbourg Cedex, France.
SO Euphytica, (1995) Vol. 85, No. 1/3, pp. 63-74. 36 ref.
Price: Conference paper; Journal article .
Meeting Info.: Eucarpia Genetic Manipulation in Plant Breeding section meeting, held in Cork, Irish Republic, 11-14 September 1994.
ISSN: 0014-2336
DT Journal
LA English
ED Entered STN: 19960216
Last Updated on STN: 19960216

L2 ANSWER 5 OF 14 CABA COPYRIGHT 2005 CABI on STN
AN 95:94572 CABA
DN 19951604631
TI Transformation of **sunflower** (Helianthus annuus L.) following wounding with glass beads
AU Grayburn, W. S.; Vick, B. A.
CS USDA-ARS, Northern Crop Science Laboratory, Fargo, ND 58105, USA.
SO Plant Cell Reports, (1995) Vol. 14, No. 5, pp. 285-289. 20 ref.
ISSN: 0721-7714
DT Journal
LA English
ED Entered STN: 19950523
Last Updated on STN: 19950523

L2 ANSWER 6 OF 14 CABA COPYRIGHT 2005 CABI on STN
AN 95:21827 CABA
DN 19941612058
TI Towards genetic modification of **sunflower**
AU Peerbolte, R.; Dek, G. J.; Remijn, E.
CS Vanderhave Research, PO Box 1, 4410 AA Rilland, The Netherlands.
SO Proceedings of the 13th International Sunflower Conference Volume 2, Pisa, Italy, 7-11 September 1992, (1992) pp. 1515-1516. ===
Meeting Info.: Proceedings of the 13th International Sunflower Conference Volume 2, Pisa, Italy, 7-11 September 1992.
DT Conference Article
LA English
ED Entered STN: 19950201
Last Updated on STN: 19950201

L2 ANSWER 7 OF 14 CABA COPYRIGHT 2005 CABI on STN
AN 95:21813 CABA
DN 19941612044
TI Gene transfer into **sunflower** (Helianthus annuus L.)
AU Burrus, M.; Damm, B.; Hunold, R.; Laparra, H.; Pignard, A.; Hahne, G.
CS Institut de Biologie Moleculaire des Plantes et Universite Louis-Pasteur, 12 rue du General Zimmer, 67084 Strasbourg, France.

SO Proceedings of the 13th International Sunflower Conference Volume 2, Pisa, Italy, 7-11 September 1992, (1992) pp. 1426-1431. 8 ref.===
Meeting Info.: Proceedings of the 13th International Sunflower Conference Volume 2, Pisa, Italy, 7-11 September 1992.
DT Conference Article
LA English
ED Entered STN: 19950201
Last Updated on STN: 19950201

L2 ANSWER 8 OF 14 CABA COPYRIGHT 2005 CABI on STN
AN 95:21626 CABA
DN 19941611845
TI Genetic transformation of the genus Helianthus by **Agrobacterium** tumefaciens
AU Biasini, M. G.; Pugliesi, C.; Rocca, M.; Fambrini, M.; Baroncelli, S.
CS Genetics Section, Department of Agricultural Plant Biology, University of Pisa, Italy.
SO Proceedings of the 13th International Sunflower Conference Volume 2, Pisa, Italy, 7-11 September 1992, (1992) pp. 1400-1407. 16 ref.===
Meeting Info.: Proceedings of the 13th International Sunflower Conference Volume 2, Pisa, Italy, 7-11 September 1992.
DT Conference Article
LA English
ED Entered STN: 19950201
Last Updated on STN: 19950201

L2 ANSWER 9 OF 14 CABA COPYRIGHT 2005 CABI on STN
AN 94:46330 CABA
DN 19941603900
TI **Cotyledons**: an explant for routine regeneration of **sunflower** plants
AU Ceriani, M. F.; Hopp, H. E.; Hahne, G.; Escandon, A. S.
CS Instituto de Biologia Molecular, CICV, INTA-Castelar, CC 77, 1708 Moron, Buenos Aires, Argentina.
SO Plant and Cell Physiology, (1992) Vol. 33, No. 2, pp. 157-164. 25 ref.
ISSN: 0032-0781
DT Journal
LA English
ED Entered STN: 19941101
Last Updated on STN: 19941101

L2 ANSWER 10 OF 14 CABA COPYRIGHT 2005 CABI on STN
AN 92:108681 CABA
DN 19922323210
TI Axenic culture of the downy mildew fungus Plasmopara halstedii in **Agrobacterium** rhizogenes-induced roots of **sunflower** (Helianthus annuus)
AU Zahka, G. A.; Viranyi, F.
CS Institut for Sporeplanter, University of Copenhagen, 0. Farimagsgade 2D, 1353 K. Copenhagen, Denmark.
SO Canadian Journal of Botany, (1991) Vol. 69, No. 12, pp. 2709-2715. 25 ref.
ISSN: 0008-4026
DT Journal
LA English
SL French
ED Entered STN: 19941101
Last Updated on STN: 19941101

L2 ANSWER 11 OF 14 CABA COPYRIGHT 2005 CABI on STN
AN 83:68644 CABA
DN 19831388633
TI Evidence for the existence of a universal crown-gall tumor initiation enhancer

AU Bouckaert-Urban, A.-M.; Vendrig, J. C.
CS Katholieke Univ., Leuven, Belgium.
SO Planta, (1982) Vol. 156, No. 4, pp. 359-363. 4 fig. 13 ref.
ISSN: 0032-0935
DT Journal
LA English
ED Entered STN: 19941101
Last Updated on STN: 19941101

L2 ANSWER 12 OF 14 CABA COPYRIGHT 2005 CABI on STN
AN 83:68643 CABA
DN 19831388632
TI Influence of a crown-gall tumour initiation enhancer on bacterial attachment to the host plant cell wall
AU Bouckaert-Urban, A.-M.; Brouwers, G.; Thoelen, L.; Vendrig, J. C.
CS Katholieke Univ., Leuven, Belgium.
SO Planta, (1982) Vol. 156, No. 4, pp. 364-368. 5 fig. 18 ref.
ISSN: 0032-0935
DT Journal
LA English
ED Entered STN: 19941101
Last Updated on STN: 19941101

L2 ANSWER 13 OF 14 CABA COPYRIGHT 2005 CABI on STN
AN 82:66582 CABA
DN 19811376953
TI The influence of plant growth regulators on crown-gall initiation on **cotyledonary** leaves of Helianthus giganteus L. in vitro
AU Bouckaert-Urban, A.-M.; Vendrig, J. C.
CS Lab. Pl. Physiol., Catholic Univ. Leuven, Belgium.
SO Zeitschrift fur Pflanzenphysiologie, (1981) Vol. 103, No. 1, pp. 75-81. 2 graphs, 1 tab. 30 ref.
DT Journal
LA English
ED Entered STN: 19941101
Last Updated on STN: 19941101

L2 ANSWER 14 OF 14 CABA COPYRIGHT 2005 CABI on STN
AN 76:66311 CABA
DN 19761321681
TI Histophotometric DNA measurements in **sunflower** seedlings, crown gall tumours and habituated callus tissues
AU Broekaert, D.; Cazier, C.; Parijs, R. Van
CS Fac. Med., State Univ. Ghent, Belgium.
SO Journal of Experimental Botany, (1976) Vol. 27, No. 98, pp. 532-540. 3 tab.
ISSN: 0022-0957
DT Journal
LA English
ED Entered STN: 19941101
Last Updated on STN: 19941101

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FILE 'CABA' ENTERED AT 17:04:40 ON 14 APR 2005
L1 154 S SUNFLOWER AND AGROBACTE?
L2 14 S L1 AND COTYLEDO?

=> d 12 abs

L2 ANSWER 1 OF 14 CABA COPYRIGHT 2005 CABI on STN
AB With the aim of increasing the rumen-protected level of the sulphur amino acids cysteine and methionine in Trifolium repens, we introduced the coding sequence of the **sunflower** seed albumin (SSA) into T. repens by **Agrobacterium** tumefaciens-mediated transformation. The SSA gene was modified such that the protein would be localised to the endoplasmic reticulum (ER). Four different T-DNA constructions, all containing the SSA gene driven by either the promoter of a gene encoding the small subunit of ribulose bisphosphate carboxylase (Rubisco) from Arabidopsis thaliana (Assu), the promoter of the gene encoding the small subunit of Rubisco of Medicago sativa (Lssu), or the Cauliflower Mosaic Virus 35S promoter (CaMV35S), were transferred to T. repens cv. Haifa. Transgenic T0-plants and inter-transgenic hybrids were analysed for the level of SSA accumulation in the leaves by western blotting. The highest observed level of SSA accumulation was 0.1% of total extractable leaf protein. We observed that the promoter had a substantive effect on the level of SSA accumulation with Assu > CaMV35S > Lssu. Results from the inter-transgenic hybrids showed that the capacity to synthesise SSA was inherited. However the level of SSA accumulation in the leaves generally appears not to be additive with extra transgenic loci. During this work, we attempted to improve the efficiency of A. tumefaciens-mediated transformation of T. repens using the SAAT-method (Sonication Assisted **Agrobacterium**-mediated Transformation) on **cotyledons** of T. repens. T-DNA transfer was in general not enhanced by sonication compared to traditional A. tumefaciens-mediated transformation. Furthermore, Southern blot analyses of plants regenerated from the same **cotyledon** after A. tumefaciens treatment and under selection, indicated that multiple shoots were usually derived from the same transformation event. We concluded from these results that only one plant from each A. tumefaciens-treated **cotyledon** should be taken to avoid transgenic clones.

=> d 12 2-14 abs

L2 ANSWER 2 OF 14 CABA COPYRIGHT 2005 CABI on STN
AB Several reports indicate **sunflower cotyledons** as one of the most effective explants for plant regeneration but unlike other **sunflower** tissues this material is not easily transformed by **Agrobacterium**. Particle bombardment is an important tool for monocot transformation and may be of use in transforming **sunflower cotyledonary** tissue. Particle delivery systems currently sold commercially have a limited focusing ability whereas **cotyledons** exhibit a confined regenerable area restricted to the embryonic axes. To overcome this problem a stainless steel focusing device which can be applied to the DuPont/BioRad PDS1000/He particle gun apparatus was constructed. This device was tested in a series of [beta]-glucuronidase expression tests carried out on **sunflower cotyledons** of cv. HA89 and experimental lines. Endogenous GUS-like activity was abolished by changing the sample buffer and by performing the reaction at 56[deg]C after having pre-equilibrated explants and buffer for 90 min. The device confined and concentrated more than 90% of the transformation events into a ring-shaped area at 5-6 mm from the target centre. Without the device, transformation frequencies were very low and scattered over a much wider surface. On the basis of these data an appropriate arrangement of the **cotyledons** could markedly improve transformation success particularly if genotypes with a high frequency of shoot regeneration are used.

L2 ANSWER 3 OF 14 CABA COPYRIGHT 2005 CABI on STN

AB A simple and reproducible **Agrobacterium** tumefaciens-mediated transformation system was developed for **sunflower** variety KBSH-1. The objective was to substantially eliminate the in vitro regeneration component from the transformation protocol. Two-day-old seedlings with one **cotyledon** detached were infected with **Agrobacterium** tumefaciens strain LBA 4404/pKIWI105 harbouring genes for [beta]-glucuronidase (GUS) and neomycin phosphotransferase (NPT II). Following co-cultivation, seedlings were grown aseptically for 5 d on a growth regulator-free basal medium supplemented with 250 [micro]g ml-1 cefotaxime (a bacteriostat used to control gram negative bacteria). Seedlings were screened for transient GUS expression and the shoot portions of the putative transformants were utilized for propagation as transgenic plants. The excised shoots that initiated roots following selection were subsequently transferred to a glasshouse. Molecular analysis of transgenic plants confirmed concordance between the presence of foreign genes and enzyme activity. The transformation regime facilitated rapid generation of up to 2% phenotypically normal fertile plants containing functional transgenes. The transmission and integration of the marker genes in the progeny is demonstrated.

L2 ANSWER 4 OF 14 CABA COPYRIGHT 2005 CABI on STN
AB Suitable **sunflower** tissues and cells of the inbred line HA300B were transformed either by direct gene transfer into protoplasts, particle bombardment, or **Agrobacterium** co-culture. While all techniques allowed efficient short-term or transient expression of the introduced gene(s) in the respective tissues, stable transformation was only observed after transformation with **Agrobacterium**. The latter technique was suitable for the production of transgenic callus from seedling **cotyledons** and occasional shoots with chimaeric expression of the transgene. Detailed analysis of the interaction of **Agrobacterium** with this explant showed that infection efficiency was critically dependent on the co-culture conditions, and that the preferentially-transformed cells were not the ones competent for regeneration.

L2 ANSWER 5 OF 14 CABA COPYRIGHT 2005 CABI on STN
AB **Cotyledons** were removed from young seedlings of cv. SDB861206, and the remaining tissue was uniformly wounded by shaking with glass beads. The wounded tissue was then co-cultivated with a hypervirulent strain of **Agrobacterium** tumefaciens harbouring the binary plasmid pCNL56, which contained the GUS and NPTII genes. Putative transformants were selected on hormone-free B5 medium supplemented with 100 mg kanamycin/litre, produced roots and were transferred to soil. PCR followed by DNA hybridization demonstrated the presence of the GUS gene in total leaf DNA of 6 primary transformants and 2 progeny plants. However, the A. tumefaciens miaA gene was not detected following PCR amplification of total DNA from transformed leaves. GUS activity was demonstrated in 5 of the T2 transgenic plants. Grafting of potentially transformed scions onto untransformed stocks increased the number of seeds obtained plant.

L2 ANSWER 6 OF 14 CABA COPYRIGHT 2005 CABI on STN
AB **Agrobacterium** tumefaciens strain LBA4404, containing a BIN19 derived plasmid carrying NPT II and GUS genes, was used to transform immature embryos, **cotyledons** and **cotyledon** nodes (included to study indirect and direct regeneration). Despite efficient genetic transformation and a high regeneration frequency, only one fully transformed, unviable shoot and a number of chimaeras were obtained.

L2 ANSWER 7 OF 14 CABA COPYRIGHT 2005 CABI on STN
AB The efficiency of genetic transformation of genotype Ha300B was compared for the following systems: co-culture of **cotyledons** with **Agrobacterium** tumefaciens; particle bombardment of immature embryos in solid culture media; and direct gene transfer in hypocotyl protoplasts using electroporation or PEG. High levels of transient

expression of foreign DNA were reproducible following incubation of protoplasts in PEG and DNA. Transient expression was also observed following bombardment of embryos with DNA-coated gold particles. GUS positive zones in regenerated shoots were detected after culture of protoplasts with **Agrobacterium** vectors.

L2 ANSWER 8 OF 14 CABA COPYRIGHT 2005 CABI on STN
AB Leaf explants of the interspecific hybrid H. annuus x H. tuberosus and **cotyledonary** explants of H. annuus inbred line R857 were inoculated with an A. tumefaciens vector carrying the GUS gene under the control of the CaMV 35S promoter and the NPT II gene. On selection medium containing 25 mg kanamycin/litre, leaf explants formed meristematic centres with buds and embryo-like structures, which developed transformed shoots on MS medium without growth regulators at a rate of 4.7% under optimal conditions. **Cotyledonary** explants formed meristematic centres on selection medium containing 4 mg kinetin, 0.4 mg IAA and 25 mg kanamycin/litre, which produced transformed shoots at a rate of 2.3% on MS medium without growth regulators. Histochemical staining for GUS activity showed that different tissues and organs had been transformed. Integration of foreign (NPT II) DNA into the genomic DNA was confirmed by PCR and DNA hybridization.

L2 ANSWER 9 OF 14 CABA COPYRIGHT 2005 CABI on STN
AB Culture of **cotyledon** explants of Helianthus annuus line Ha300 on modified MS medium (MS-Ha) containing 1 mg benzyladenine (BA)/litre resulted in the highest percentage direct shoot regeneration, whilst optimum conditions for callus proliferation involved the use of 0.5, 0.75 or 1 mg NAA/litre alone or in combination with low concentrations of BA. Histological analysis of the kinetics of shoot formation revealed the development of abundant meristematic centres in discrete regions of the basal part of the **cotyledon**. Out of 20 genotypes, comprising 13 commercial inbred lines and 7 hybrids (derived from crosses with H. argophyllus), evaluated for direct shoot regeneration from **cotyledon** explants under optimum conditions, only 10 responded. Infection experiments using wild-type **Agrobacterium** tumefaciens B6S3 showed that tumour tissue was restricted to the basal part of the **cotyledon**.

L2 ANSWER 10 OF 14 CABA COPYRIGHT 2005 CABI on STN
AB P. halstedii was cultured axenically in association with **sunflower** roots derived from petioles inoculated with A. rhizogenes. An axenic zoosporangial suspension obtained from sporulating **cotyledons**, was added to A. rhizogenes-induced root pieces on agar or in liquid nutrient medium. Roots showed profuse P. halstedii sporulation after 1 week. A comparative study in infection morphology with excised **sunflower** roots (not induced by A. rhizogenes) of the same cultivar showed no difference, and both resembled P. halstedii infection in roots from intact plants. The dual-member cultures with A. rhizogenes induced roots were a good source of axenic P. halstedii inoculum, and zoosporangia remained viable for up to 2 months in dual-member cultures maintained at 18-20[deg]C. Noteworthy features were the balanced state of host and parasite and the prolific production of P. halstedii oospores.

L2 ANSWER 11 OF 14 CABA COPYRIGHT 2005 CABI on STN
AB Tumour initiation of different dicotyledonous plants inoculated with **Agrobacterium** tumefaciens B6 was studied in vivo and in vitro. Tumour formation in weakly susceptible plants was strongly enhanced by exogenously applied active extract fractions from highly susceptible **sunflower cotyledons** [RPP 61, 814]. The susceptible Kalanchoe, tomato and Pinto bean (Phaseolus vulgaris) were shown to contain a tumour enhancer similar to that in **sunflower**. No such activity was detected in extracts from weakly susceptible plants or crown gall tissues.

L2 ANSWER 12 OF 14 CABA COPYRIGHT 2005 CABI on STN
AB The low or high susceptibility of different plant spp. to tumour formation by **Agrobacterium** tumefaciens was independent of their capacity to cause bacterial cells to adhere to specific sites on the plant cell walls. Attachment properties of cell wall fragments from **sunflower cotyledons** were age dependent. The tumour initiation enhancer in extracts from highly susceptible plants did not influence bacterial adherence. Attachment, and the step by which the tumour initiation enhancer is involved, clearly differ in the processes leading to the transformation of a normal cell into a tumour cell.

L2 ANSWER 13 OF 14 CABA COPYRIGHT 2005 CABI on STN
AB Tumour initiation in **sunflower cotyledons** inoculated with **Agrobacterium** tumefaciens B6 was studied in vitro. Susceptibility depended on physiological age and could be changed by exogenously applied growth regulators, tumour growth being unaffected by such additions. It is concluded that tumour initiation is not controlled by any specific regulator. The use of regulators may result in a hormonal imbalance creating the opt. condition for transformation of **cotyledon** cells into tumour cells.

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AB Crown gall (**Agrobacterium** tumefaciens) tumours of **sunflowers** were studied with special reference to the amount of DNA/nucleus, determined by Feulgen staining and Lison histophotometry. Results showed that all tissues of normal germinated seedlings remain in the diploid state and that crown gall tumours on the hypocotyl consist predominantly of diploid cells. Organ differentiation (root primordia and young roots) occurred in the tumour tissues and enlarged cambial and parenchymatous cells, scattered or grouped in the tumour, could switch from the mitotic to the endomitotic cell cycle. As a result a polyploid amount of DNA (8-C, 16-C) was measured in the nuclei. However the observations do not justify the classification of the tumours as typical teratomas. The tendency towards polyploidization was also demonstrated in habituated **sunflower** callus cultures by different techniques. The results are discussed in relation to the thesis that nuclear potentialities in vivo are largely reflected in vitro and in the tumour state.<new para>ADDITIONAL ABSTRACT:<new para>Histophotometric data on meristematic nuclei of the plumule and the root tip and on parenchymatous nuclei in the **cotyledon**, hypocotyl and root are presented for normally-germinated seedlings of **sunflowers**. The germination of **sunflower** seeds in the dark involved DNA synthesis, cell division and differentiation in the meristematic tissues and surplus cell elongation in the hypocotyl, root and **cotyledon** tissues. The diploid state was predominantly present in all tissues.

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L1 154 S SUNFLOWER AND AGROBACTE?
L2 14 S L1 AND COTYLEDO?